Training Within Industry Series
Book 1 - Job Instruction (TWI-JI)

Training Within Industry

A Must-Have Skills for Supervisory

Chilmar, M.Eng, CPHR

Training Within Industry Series
Book 1 - Job Instruction (TWI-JI)

Training Within Industry

A Must-Have Skills For Supervisors

Chilmar, M.Eng, CPHR

This book is dedicated to

Ita my wife, Cenna and Gazel my sons

and

Apprentice Trainning Within Industry

For Indonesian LEADER in the FUTURE

Table of Contents

Introduction 1

Chapter 1 – History of Training Within Industry (TWI) 7

1. Background on the Emergence of TWI 9
2. The History of Training Within Industry
   - 2.1. History of TWI in America 10
   - 2.2. History of TWI in Japan 16
3. Current Developments in TWI

Chapter 2 – Traaining Within Industry (TWI) 27

1. What is a Supervisor 27
2. 5 Requirements of a Supervisor 27

Chapter 3 – TWI Simulation: Job Instruction (JI) 34

Chapter 4 – Discussion of the Simulation and TWI-JI Card 49

Chapter 5 – Frequently Asked Questions About TWI 63

Conclusion 69

Appendix 71

1. TWI Card – JI
2. Practice by just saying
3. Job Breakdown and Key Points

Below is the Job Breakdown for creating a knot using a standard double-fluted power cable. Use this with the TWI-JI 4-Step Method.

Cable Winding: Standard Double-Fluted Power Cable Knot

Cable Winding

4. Other TWI-JI Documents
5. Examples for Memorization

References 86

INTRODUCTION

Many books have been written about supervision. Each is written from a different perspective. I want to add a reference from the perspective originally summarized by Charles Allen: Training Within Industry (TWI). From the TWI perspective, a supervisor is someone entrusted with subordinates to train and develop them so they can perform tasks correctly, with quality, and safely. So who is a supervisor? Anyone with subordinates — from team leaders to directors.

In January 2007, I had the opportunity to train as a Training Within Industry (TWI) trainer at the Nihon Sangyou Kunren Kyokai (Japan Industrial Training Association) in Shibuya, Tokyo. Of the many trainings I attended in Japan, the TWI training was the most memorable. I kept wondering: Why don't we have training like this? On the last day of that intense 6-day training, I wrote that I would bring this to Indonesia.

Why did I 'fall in love' with Training Within Industry? I was drawn to its PHILOSOPHY. I strongly connect with the PHILOSOPHY of TWI as described in the original manuals:

1. Humane: acknowledging and appreciating each person
2. Scientific approach: no forcing, no waste, and standardizing the best ways

This simple mindset is probably why TWI has endured since it was developed in the 1940s.

In addition, after understanding the PHILOSOPHY more deeply, it turns out that the mindset, the method used in TWI can be used not only in the manufacturing field, it can also be used in the non-manufacturing field, that is what adds to the love of writing TWI.

After completing all TWI modules — Job Instruction, Job Method, Job Relations, and Job Safety — at different times, I met Mr. Noeradji, Mr. Paulus, and Mr. Yuwono from PQM Consultant. I looked for

opportunities to share TWI whenever possible. Alhamdulillah, thanks to their kindness, I was given the chance to share at the ISO User Club forum by PQM.
Also, thanks to Mbak Nontje Yulia, I shared at the HOS-Betawi forum, and thanks to Cak Sun, I shared at the HRM forum.

I've wanted to write a book on TWI to contribute to Indonesian manufacturing and non-manufacturing for years, but hadn't found the strong drive to do it until now. The trigger for this writing is from Kang Asep Hairul Gani and Adang Adha (Better Mind). I express my deep gratitude to both of them. Without them, this book probably wouldn't exist.

I plan to write this as a 4-part series. The first is Training Within Industry – Job Instruction, followed by Job Method, Job Relations, and Job Safety. Why 4 series? So each book stays concise. I want this book to be READ and PRACTICED, because TWI is built on Learning by Doing. If it's too thick, readers may feel overwhelmed before they even start.

I wrote this book in a storytelling style, like I use in public training. With such a method, it is hoped that it can bring readers who have never participated in the training, as if they were in a classroom and participated in diving into what was done and delivered.

To close this introduction, I'd like to thank Mr. Takeshi Ichikawa, President Director of PT Yamaha Music Manufacturing Asia, for his support.d Mr. Trisila Heroe Laksono for giving the author the opportunity to take part in all the Training Within Industry modules, to PQM Consultant (Starting from Mr. Paulus A. Setiawan, Mr. Sonny Irawan, Mr. Eddi Sutanto, Mr. Noeradji Prabowo, Mr. Yuwono Wijanarko and other colleagues at PQM), to Ms. Nonce Yulia and Cak Sunawan who gave the opportunity in the forum, Mr. Ng Siok from Garuda Food and Mr. Jack Alonzo and also Mr. Kusdiana Hilman who continued to help to share this TWI.

And infinite thanks to Kang Asep Hairul Gani and Adang Adha who provoked the writing and publication of this book. Without the two of you, maybe this book is just a dream.
Also to the publisher..... that realize this book.

Lastly, a heartfelt thank you to my beloved wife,
Vitria Pragesjvara, my dear children Avicenna Wisesa and Algazel Aqilla, who willingly gave Saturday-Sunday time to the preparation of this book. Also to Papa Buchari Iljas and Mama Julia Buchari (Alm.), who strive to write to achieve education as it is today. As well as Mr. Krisdarmaji and Mrs. Wartati who always support the realization of this book.

Bekasi, March 2011

Chilmar

日本産業訓練協会先生たちのメッセージ

皆さんへ

講師の田村です。

チルマルさん、伊東さん(写真も拝見)、野田さんのメールを読み、
皆さんがそれぞれ活躍しているのを知り、うれしく思いました。

皆さんはトレーナー資格を持っているので、それを生かして研修を出来るだけしたほうがよいのですが、研修をしない場合でもJRの内容は部下や他の人々に働きかけるのに有効ですから、皆さんのリーダーシップ発揮の上で役立ちます。

私は77歳になりましたが、まだ日産訓の講師として指導に当っております。世の中が厳しくなったせいか、最近の参加者はみんな熱心に研修に取り組んでいます。

皆さんがこれからも健康に気を配りながら、大いに実力を発揮なさるように祈っております。

田村 喜晃
Sun 27-Feb-2011 9:28 AM

チルマル 様

お申し越しの「森先生と私からお言葉がほしい」件について、次のようにお知らせします。

1. 森先生は電子メールを使っていません。そこで、電話と手紙で先生と連絡を取り合った結果、次のお言葉をいただきました。

チルマルさんへのメッセージ TWI-JI トレーナーデビューおめでとうございます。
JIの手引書に「この確実で信頼のできる教え方で実施すれば 必ず成果をあげます」と言っています。
今後のご活躍を期待します。

日本産業訓練協会 講師 森 俊雄（モリ トシオ）

2. 私からは次の言葉を差し上げます。

監督者にとって最も大切なことの一つは、自分の部下に働きかけ、 やる気にさせ、よい仕事をさせて、業績を上げることです。したがって、 監督者は部下という人に適切に接し、使いこなす技能を身につけなけ ればなりません。
これに役立つのが TWI-JR(人への接し方、人の使い方)の研修です。 チルマル氏は TWI-JR のトレーナー養成講座を立派な成績で卒業した 実力のある人なので、必ずよい研修を実施するものと期待しています。

日本産業訓練協会 講師 田村 喜晃（タムラ キコウ）

さて、日本では3月11日に発生した東北地方を中心とした巨大地震、巨大津波、原子力発電所事故、連続しての余震、生活ラインの寸断などでいま混乱して

います。森先生は横浜、私は埼玉県に住んでいて、大きな被害には会いませんでしたが、それでも関東地方は震度5の強い地震があり、今も震度3前後の余震が続いています。そのため、交通が乱れ、ガソリンが不足したり、電気が一時的に来なくなったりして、不便をしております。
そうした事情のために、返事が遅くなりました。
チルマルさんは、今後とも元気にご活躍ください。

田村 喜晃
Sat 19-Mar-2011 10:05 PM

Doing The SAME THING over and over again and expecting DIFFERENT RESULTS is an INSANITY.

- Albert Einstein -

Chapter 1.

HISTORY OF TRAINING WITHIN THE INDUSTRY

In the world of manufacturing, the company that is often the subject of benchmarking is TOYOTA. In Japan itself, Toyota is often a role model, because it is so often discussed, it can be said that TOYOTA is the God of the manufacturing process in Japan. Hundreds of books about Toyota's production system (TPS), Toyota's work culture were written. Many companies benchmark Toyota.

Toyota itself conducts training in Japan openly. In 2002 when the author participated in the Toyota Production System Part 1 (TPS Part 1) training in Nagoya, at a fairly high cost, there were around 500 participants who attended. We imagine the number of people present. Participants who sat in the back row, looked at the presentation screen using binoculars. Amazing. The speakers on the first day of the presentation were Toyota General Managers followed by visits to Toyota factories on the next day. This training is held by Toyota 2x in 1 year.

In addition, in 2007 the author had the opportunity to participate in the Toyota Production System Part 2 (TPS Part 2) training in Nagoya again. The training which starts from Sunday and ends with a presentation on Friday can be said to be a training that does not provide sleep opportunities for the participants. This training is material on how to make improvements in the workplace with an Industrial Engineering mindset to eliminate waste by directly making repairs in Toyota subsidiaries. Even though this training is tiring, there are still many enthusiasts and reservations are made a few months in advance.

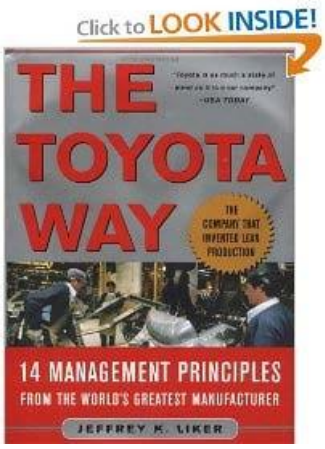
This shows the great interest of manufacturing companies in Japan to learn from Toyota and find out what Toyota is doing.

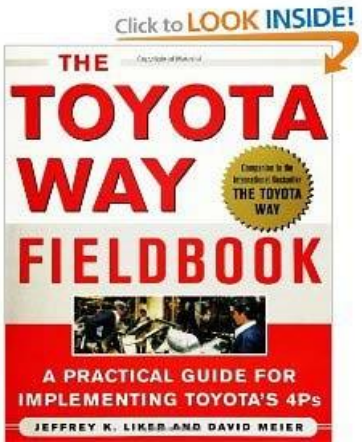
In the United States, Jeffrey Liker (Professor at the College of Engineering, The University of Michigan, http://www-personal.umich.edu/~liker/) has written various books about Toyota starting from The Toyota Way, The Toyota Way Field-Book, Toyota's Product Development System, Toyota Talent: Developing People the Toyota Way, and Toyota Culture: The Heart and Soul of The Toyota Way. The books were written to analyze what TOYOTA's philosophy was, what they did to make them as successful as they are today.

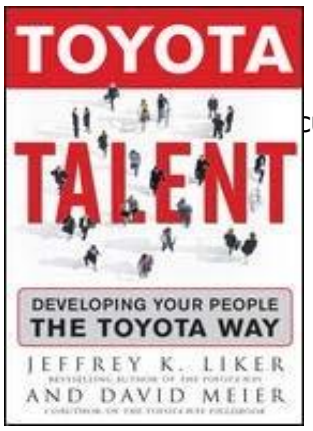
As a manifestation of Toyota's success, for example in 2006 where General Motor (GM) globally was able to sell 9,090,800 cars, Toyota managed to rank second with 9,010,700 units. Meanwhile, the profit in 2007 was 2 trillion yen. (Approximately 200 Trillion rupiah, currently 1 yen = 100 rupiah). WOW. Not playing. Just to illustrate, what if the population of Jakarta is 10 million people. So the advantage is that Toyota can buy 2 units of motorcycles for 10 million rupiah. Compare it with the size of Indonesia's State Budget in 2010 of Rp1047.7 T. Meaning that there are enough **5 companies** equivalent to Toyota to be able to keep up with the income of our Republic.

Now the question is why can Toyota develop as it does today? Toyota can grow and make profits as it is today..... One of them is the sustainable development of human resources. One of the methods of human resource development carried out by TOYOTA is to use the Training Within Industry (TWI) method. Training Within Industry is learned at Toyota and developed at Toyota according to its interests.

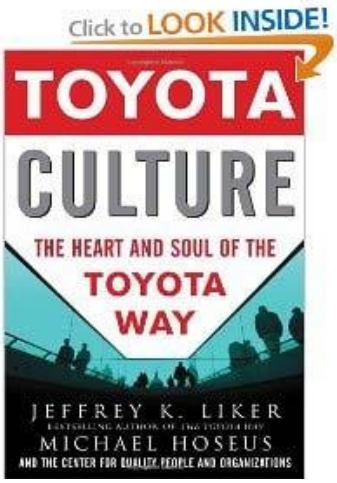
The author tries to explain about TWI, starting from the Background of its birth and the History of TWI in America and Japan.




Click to LOOK INSIDE!
THE TOYOTA WAY FIELDBOOK
A PRACTICAL GUIDE FOR IMPLEMENTING TOYOTA'S 4Ps
JEFFREY K. LIKER AND DAVID MEIER



cuss T


Click to LOOK INSIDE!
TOYOTA CULTURE
THE HEART AND SOUL OF THE TOYOTA WAY
JEFFREY K. LIKER
MICHAEL HOSEUS
AND THE CENTER FOR QUALITY PEOPLE AND ORGANIZATIONS

1. Background of the Emergence of TWI

In World War II, on June 22, 1940, France fell to the Germans. With the fall of France, America as its ally decided to send reinforcements to the battlefield in Europe. Many of the army reinforcements sent to the battlefield are volunteers who work in the manufacturing world, where they are the backbone of the production process. On the one hand, with the sending of volunteers to the battlefield, it means that more war equipment (rifles, bullets, army uniforms) and other supporting equipment, such as foodstuffs, are needed.

On the one hand the trained workforce is decreasing, but on the other hand the demand for production related to the needs of the war is increasing. So that to achieve the goal of Winning the Global War, the War Production Commission of the American Government formed what is called the TWI Service.

The goal of this TWI Servide is to help the industry improve itself to get more material than previously thought and constantly accelerate.

Rosie-the-Riveter

Rosie-the-Riveter, being a commonly used symbol of WWII labor is a real person. Rose Will Monroe was a riveter for B-29 and B24 aircraft at the Willow Run, Michigan aircraft factory. She was asked to star in a promotional film about war production and to be an American poster girl for women joining the workforce. He is often used by the TWI Institute to symbolize the spirit and pride associated with TWI for more than 60 years.

Training Within Industry promotional poster from TWI Services

The original model was named Rosie-the-Riveter

(http://twi-institute.com/history.htm)

2. History of TWI (In America and Japan)

2.1 History of TWI in America

The TWI Service itself, formed in August 1940 and ended in September 1945, was led by 4 people, namely:

1. Channing Rice Dooley, as Director of the TWI Service.

2. Walter Dietz, as associate Director 3. William Conover, as assistant Director and
4. Michael Kane, assistant director.

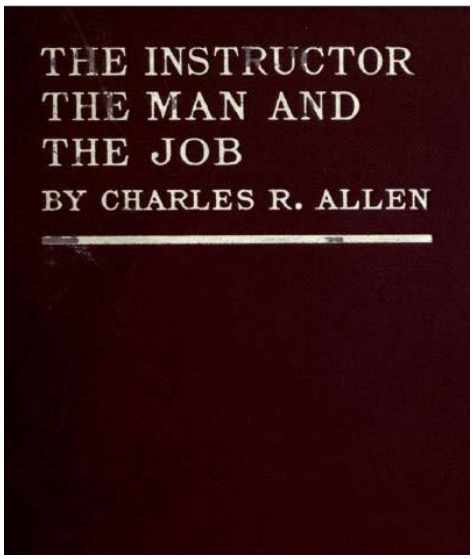
TWI-Service Leader
(Photo from the book: Learning by Doing, The Story of Training Within Industry by Walter Dietz and Betty W. Bevens)

"THE FOUR HORSEMEN" 1944

Dooley Dietz Conover Kane

3 of the 4 people mentioned above had met in training developed by Charles R. Allen in order to increase the number of shipbuilders for World War 1 by 10 times when there were only people with no experience available. The program was an emergency program at the request of the Emergency Fleet Corporation of the United States Shipping Board.At that time Chris Allen used the 4-step method. The 4-step method is:
1. Preparation,
2. Presentation,
3. Application,
4. Testing.

This method was later summarized by Charles Aleen in his book The Man and The Job published in 1919.



The 4-step method is summarized in The Instructor The Man and The Job, By Charles R. Allen.

The purpose of stage 1 is to make the learner ready to be instructed, stage 2 to provide instructions, stage 3 to check for errors and stage 4 to provide a final inspection of the work instructed. The Allen 4-stage method is used as the basis for the development of the 4-stage TWI method.

The TWI training is given to companies in America to boost production to produce more quality output with the impact as written below.

The Impact of Training Within the Industry

The effectiveness of this TWI Service can be said to be dramatic. From the report
"The Training Within Industry Report: 1940-1945. A total of 1,750,650 people from the industrial world participated in the TWI training

certification designed 5x2 hours from 16,511 factories and trade unions.

With the following details:
The total of all certifications issued until the end of the TWI Service ended September 30, 1945:

Job Instuction	1,005,170
Job Methods	244,773
Job Relations	490,022
Union Job Relations	8,856
Program Development	1,829
Total	1,750,650

In addition, the actual impact is based on surveys reported by 600 companies monitored during the war, based on the productivity increase produced, among others. :

a. 86% get a minimum production increase of 25%.
b. 100% get a minimum reduction of 25%
c. 88% get a reduction in working hours, more than 25%
d. 55% get a minimum 25% reduction in residual materials
e. 100% (All) get a reduction in complaints from customers of more than 25%.

	Percentage of Factory Reports that result above 25%						
	May 1943	Sept 1943	Feb 1944	Nov 1944	April 1945	July 1945	Sept 1945
Increased Production	37	30	62	76	64	63	86
Reduced training time	48	69	79	92	96	95	100
Savings	11	39	47	73	84	74	88
Loss reduction	11	11	53	20	61	66	55
Decreased complaints	Not reported		55	65	96	100	100

Source : War Production Board, Bureau of Training, Training Within Industry Service,

September 1945, The Training Within Industry Report : !940-1945, (Washington D.C. : U.S. Government Printing Office), page 92.

If we look at the table above, the achievements obtained are a fantastic achievement. A 25% increase in productivity is not an easy thing to achieve. Saving production costs from reducing materials wasted due to defective products, or saving employee training costs of at least 25%, is also very helpful for the development of the company.

It turns out that in its implementation, TWI is not only applied to manufacturing companies, but also
implemented in the non-manufacturing world such as in hospitals and even prisons in the United States.

Indeed, there is no detailed explanation that can explain why TWI disappeared from America. There are two factors that can be considered as the cause as Jim Huntzinger writes in his article The Roots of Lean, Training Within Industry: The Origin of Kaizen. By the end of World War II, which was won by the United States and its Allies, the United States, in addition to leading the war, also became a supplier of products to its allies before and during the war. With the spirit that "the children of America" fought on the battlefield raised high morale, competitiveness to make a strong and large industry. This condition is felt as a temporary condition. So that when World War II ended, and conditions returned to normal, there was no longer a vision for TWI that existed during the war.

The second factor is that, after the end of the war those who once had expertise in the occupation, so that it is no longer in their dictionary, the workers were untrained. So that managers at the lower level do not exceed the need to implement the TWI program. Even so, American industry still excelled at that time. And this self-satisfaction is one of the causes of the disappearance of TWI from the industrial world in America.

In 1984, Toyota in collaboration with General Motor opened a factory in Freemont, California called NUMMI (New United Motor Manufacturing Inc.). Toyota implements the Toyota Production System in the company's operations, so it is necessary to teach the TPS-style work system. For this reason, Toyota used the English-language TWI manual that the United States used when teaching Japanese workers to teach workers in the United States.

The NUMMI Plant in Freemont, California, Open 1984 – Closed 2010
From http://en.wikipedia.org/wiki/NUMMI

At the time of the development of TWI at NUMMI,

- 600 employees sent to Japan to study
- 400 TWI trainers sent to America
- 30 managers and coordinators sent from Japan

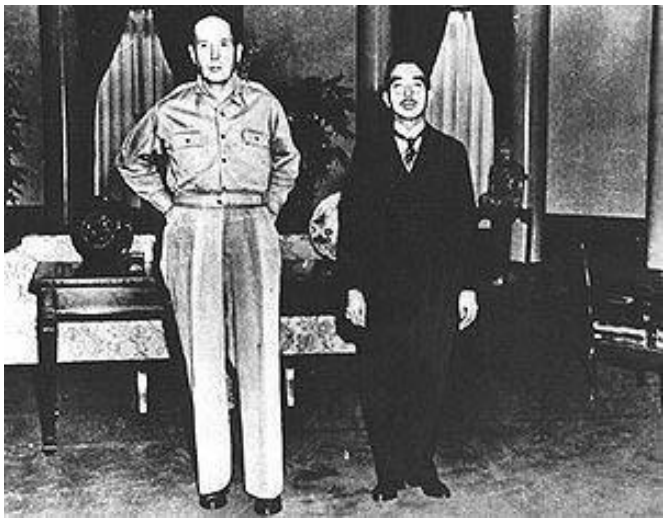
The result was in 1 year, the factory in NUMMI

a. To be the best quality factory in history
   General Motor (GM)
b. Have the best productivity

A system that was originally summarized and used in America
The United and its success in history, turned around to be used by the Japanese (who had once taught the United States) to teach Americans. Something tragic.... America made it, spread it, but because it was COMPLACENT with the success it had, it didn't use it anymore. Meanwhile, Japan absorbed this knowledge, using it consistently so that it succeeded with the once successful method.

2.2 History of TWI in Japan

What about TWI's own history in Japan? Starting from Japan's defeat in World War II. With this defeat, it can be said that America controlled Japan. General Douglas McArthur took a humane approach that was accepted by Japan, namely by respecting the existence of the Japanese emperor (then Hirohito). By putting the Emperor first, the approaches taken by Mc Arthur went smoothly.



General Mc Arthur with Emperor Hirohito
From http://en.wikipedia.org/wiki/Douglas_MacArthur

During the American occupation of Japan, McArthur saw the deteriorating condition of Tokyo, and he thought about how to restore the condition of Japan at that time. In the interest of the American occupation of Japan, Mc Arthur created what was called the Headquarters
(General Head Quarter, GHQ in Tokyo, precisely at the Dai Ichi Seimei Building, Chiyoda-ku) in October 1945.

GHQ Head Quarter (1950)
http://en.wikipedia.org/wiki/Supreme_Commander_Allied_Power

Dai Ichi Seimei Building which was once used by GHQ, The back of the building was built after the American occupation
http://en.wikipedia.org/wiki/Supreme_Commander_Allied_Power

Ground-level Tokyo after repeated bombings
End Year 1944-1945
(http://ja.wikipedia.org/wiki/%E6%9D%B1%E4%BA%AC%E5%A4%A7%E7%A9%BA%E8%A5%B2)

General McArthur also experienced the difficult conditions in Japan at that time while staying at the Yokohama New Grand Hotel, and there is even the following story. At one point he ordered "American Breakfast" for his breakfast. But he was surprised when his order came out, it turned out that the cow's eye egg that came out was only one grain. (Usually American Breakfast is provided with 2 cow's eye eggs). He asked why only 1 item? His answer made him moved... Only 1 egg can be obtained, General... (On the previous night the 11th Air Division had been trying to find eggs for General McArthur's early morning).

In order to restore the condition of Japan, he recalled the TWI that succeeded in helping the development of Industry in America at the time of the fall of France in Europe. Until in 1948,
GHQ provided the English edition of TWI training materials to the Japanese Ministry of Manpower. With the help of these training materials, a Japanese TWI training manual was made which was then used in March 1950 to train TWI-JI (TWI Job
Instruction) for the Trainer for the first time

General Douglas McArthur
From http://en.wikipedia.org/wiki/Douglas_MacArthur

Starting from TWI-JI, lalau in October 1950 continued with the introduction and training of TWI-JR (Job Relation) for trainers. In order to ensure the effectiveness of the TWI training, in January 1951 people associated with the development of TWI were brought by GHQ to Japan. In October 1951, the introduction of TWI in Japan was declared complete.

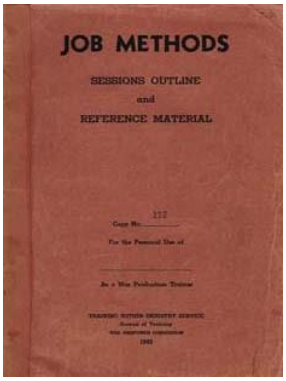
日産訓
東京本部

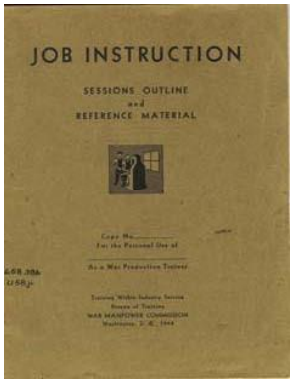
What was taught by the Americans, it turns out that it continues to be used and developed by the Japanese. So in July 1955, with the cooperation between the Ministry of Trade and Industry, the Ministry of Labor of Japan and the Japan Economic Association, the Nihon

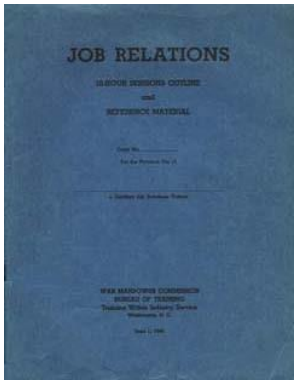
Sangyou Kunren Kyoukai (Japan Industrial Training Association, in Japanese abbreviated as Nisankun) was established, currently based in Shibuya, Tokyo. This "Nisankun" is the center of training for SUPERVISORS based on Training Within Industry (Business Skill Enchance Program) and MTP (Control Training)
Program). TWI was used as the basic industrial education in Japan and Nissankun was appointed as the institution responsible for training trainers and supervisor training within TWI.

The types of TWI Training developed and taught by
There are 3 types of America, namely

1. TWI-Job Instruction Training (TWI-JI)
2. TWI-Job Relations Training (TWI-JR)
3. TWI-Job Methods Training (TWI-JM)







3 Training Manual Within Industry

But Japan does not stop there, for the sake of occupational health and safety, Japan developed TWI – Job Safety (TWI-JS). Training for TWI-JS to learn how to work safely began to be provided in 1968.

What the Americans taught, just as the quality science of Demming was taught to Japan, was well absorbed and developed by the government agencies and the industrial world in Japan. One of the industries that absorbed that well was TOYOTA. Toyota absorbs TWI well and develops it in the development of its plant consistently.

In 1984, as mentioned above, in order to expand Toyota globally, Toyota in cooperation with General Motor established a factory in NUMMI. The conditions at the time when TOYOTA were going to set up a factory in NUMMI, the factory was the worst GM factory in terms of quality and work motivation. They have what's called the UAW Workforce, where workers with different types of jobs have different unions, so if there are differences of opinion between the unions, it will have a direct effect on job productivity.

Toyota manages this plant by introducing and implementing the Toyota Production System (TPS). In the implementation of the TPS, they use Training Within Industry. The TWI Manual used is the edition of the TWI Manual
The English that Americans once invited the Japanese..... Again.... I say TRAGIS... The science compiled by the Americans, then used and taught to the Japanese, because of America's own negligence and arrogance was not used. Eventually the science was reused by the Japanese to teach Americans.

The results achieved by TOYOTA in collaboration with General Motor (GM) at NUMMI are:

1. Factory To be the highest quality factory in General Motor (GM) history
2. Have the best productivity in GM
3. Continue to hire all employees who were once considered problematic

3. Current TWI Development

Training Within Industry in Japan itself, in addition to being centralized in Nissankun, is also carried out by Industrial Training Centers spread throughout the Prefecture (equivalent to Provinces in Indonesia) of Japan. The level of participants from this TWI, starting from the staff to

Company Director. The author himself when participating in the training at Nisankun, in Japanese, as a TWI trainer, always got classmates at the level of Manager or Company Director.

Meanwhile, in the United States itself, since the emergence of the book TOYOTA WAY, the American industry has begun to explore why Toyota can be what it is now and one of them is that they are discussing TWI (TOYOTA TALENT). A Collection of Books on Inner Training
Industry entitled: Training Within Industry, The Foundation of Lean by Donald A. Dinero. Many websites write and discuss Training Within Industry. (See the Websites page related to Training Within Industry. And learning again about TWI has been intensified since 2007 with the holding of the Training Within Industry SUMMIT. In 2011 TWI SUMMIT was the 5th annual meeting held in
Orlando, Florida (http://www.twisummit.com/)

The following is an example of the resurgence of wanting to re-study TWI in America.

TWI-Summit is held annually in the United States:

http ://www.twisummit.com/

The original materials of TWI can be found at the Society of Manufacturing Engineers:

http://chapters.sme.org/204/TWI_Materials/TWIPage.htm There is also a blog that discusses TWI:

http://www.trainingwithinindustry.blogspot.com/ Or

institutions that organize TWI Training:

http://twi-institute.com/

TDO Solutions for Manufacturing & Technology

http://www.tdo.org/compete/training-within-industry-twi/

12MANAGE
THE EXECUTIVE FAST TRACK

http://www.12manage.com/methods_training_within_industry.html

TWI homepage of South Carolina Manufacturing Extension Partership

TWI
Training Within Industry

http://www.scmep.org/twi.html

Training Within Industry Service :
http://www.trainingwithinindustry.net/

http://www.twilearningpartnership.com/

And day by day more and more organizations and training institutions are returning to teach Training Within Industry.
In Japan itself, Nihon Sangyou Kunren Kyoukai (Japan Industrial Training Association) continues to conduct TWI training.

http://www.alpha-net.ne.jp/users2/sankun/tokyo/index.html

Matter The Same occurs on Trainings SUPERVISORY/LEADERSHIP of The Association for Overseas Technical Scholarship, Japan (AOTS: http://www.aots.or.jp)

From these conditions, it can be said that the re-learning of Training Within Industry as **a WELL-PROVEN METHOD** is starting to turbulent again.

REST AND REFLECTION

Simple is Beautiful.

Once the author participated in a project to control the process, Where one of the problems is the calculation of workload. The process in our factory starts from the woodworking process and then is sent to the Final Assy (final assembly).

For the timber section, the process is as follows, namely Initial Cutting, then Machining and finally Sub Assy. The highest load is in the Machining section because it relies on the capacity of the machine, which is in the NC Router section. Together with the team, we finally tried to reduce the load of the machine by adjusting the amount of production in the Machining section. As a result, the load in the machining process can be evenly distributed, BUT... if the Sub Assy section follows the production schedule in the Machining section (previous process), the workload in the Sub Assy... Become ambiguous.... Up and down?? Wow. How about this...? Days of tinkering with the schedule in the NC Router machine... but the result is but the same.... The other part of the schedule will be distorted.... By accident.... Any ideas... What if the final part of the schedule (Final Assy) is the same every day, both in number and model. Ahaaa.... !! It turns out that if the final schedule is flattened... As a result, the load of the machine was processed before so it was also flat..... Wow... Why don't you think about it like this...?

From this work.... that can be learned... If the process is final
SIMPLIFIED his mindset... The result... the previous process will also be SIMPLE the load... So the problem... How to SIMPLIFY a process/work.... It's true... SIMPLE is BEAUTIFUL.. but making things SIMPLE is not easy.
If you look at Einstein's formula is also the same, E = mc2. The formula is simple, but the meaning is deep. That's why I remembered the words of my professor in college, "Explaining difficult things with difficult words is easy. Explaining difficult things in easy words is much more difficult". That's where the challenge is....
Wuuiiiih... not play... indeed... SIMPLE is BEAUTIFUL... ☺

KAIZEN (Continuous Improvement) is NOT something that should be done, but a NECESSITY for SURVIVAL.-

Chilmar -

Chapter 2.

Training Within Industry (TWI)

1. What is a Supervisor?

What is Training Within Industry itself? TWI is a training for people to become Supervisors/Supervisors. What is meant by a Supervisor here is not a person who has a position as a SUPERVISOR, but "A person to whom a subordinate/subordinate is entrusted to be fostered/educated, empowered to use". So the position of person is referred to as a Supervisor here, it can be a Leader/Group Leader, Supervisor, Manager and even a Director of a Company.

Besides that, it also includes people teaching work to others.

2. 5 Requirements of a Supervisor

A supervisor is a person who achieves his or her job target through others. He is a person who has to solve problems in the area of work being handled, he is also the person who spearheads the necessary improvements or changes in his workplace. In addition, they can also communicate well with their subordinates so that the work relationship is harmonious and becomes work safety in achieving work results.

Based on the points above, in Training Within Industry (TWI), there are 5 requirements for a Supervisor, namely having 2 Knowledge and 3 Skills (Skills).

The 2 must-have knowledge are:

1. Knowledge of Work
2. Knowledge of Duties and Responsibilities

The 3 skills needed according to their role are:

1. Skills in Handling People
2. Skill to Make Continuous Improvements
3. Teaching/Instructing Skills

We discussed first about 2 Knowledge:

(1) Knowledge of Employment.

There is a specific knowledge of each person according to the type of work needed to carry out their work correctly. What is meant by knowledge here is special knowledge in each of our work. In the world of the manufacturing industry, it can be in the form of knowledge of materials, machines, equipment, processes, ways of working, and the types of technology required in processing. And the service industry can be in the form of knowledge of sales methods, customer service methods and others.

With the faster the development of technology, the more knowledge is learned. It's important to always add to it. For example, with the development of the internet, there is a possibility that the way of doing work will change, meaning that knowledge about the Internet is also a knowledge that must be developed. Or if there is a new product development, it means that knowledge about the new product starts from the material, how to store, process including the advantages need to be mastered.

(2) Knowledge of Duties and Responsibilities Is the knowledge of obligations and authorities, in other words the knowledge required in the job about company policies, employment agreements, general work regulations, safety regulations, organizational structures, work plans and others.

Knowledge of these duties and responsibilities in different jobs or companies is likely to be different. Based on position, of course, it will be different. For this reason, regarding the responsibilities given, it is necessary to understand what authority is possessed to be able to do the job well.

Both knowledge can be obtained by studying or reading existing theories about Work and Duties and Responsibilities based on the position they hold.

Sometimes there are Supervisors who have knowledge who think they have the skills to be able to do "SUPERVISORY" work. Knowledge alone is not enough, for Skills to be required. Skill is an inherent ability that is obtained from the repeated application of the skill itself. In accordance with the concept of "Learning by Doing". The higher the flight hours, the more the skill will increase.

Let's move on to the 3 Skills required in TWI.
The skills are as follows:

(3) Skills of Handling People

Most of the Supervisors are people who have several subordinates. Work as a Supervisor is declared successful if subordinates perform tasks happily, work at the required time, with the method set as instructed. So how can these conditions be achieved is by paying attention to health conditions, feelings and attitudes at work. If there is a mistake, pay attention and be able to provide help when needed. For this reason, it can be done by implementing the "Basic Attitude" to make good relationships between people.

So this skill is, a skill that is useful for obtaining cooperation from subordinates by facilitating connections between people. Because supervisors achieve results through subordinates, if this skill is used every day, it can prevent problems from growing and even if problems arise, they can be solved properly.

(4) Continuous Improvement Skills

A skill that is needed by a Supervisor, because in essence every day is a change. There is no change/improvement, it cannot move forward. As the world continues to change, minimal changes are needed to keep pace with the environment. Technology that is constantly changing. If you don't make changes, then the environment will change it so that the existence of the work or that part will be threatened and may be eliminated.

This skill is to conduct detailed research on the job description without missing a beat, then make it efficient. First by eliminating the waste, then determining the order and combining them and finally by making it easier. If this skill is possessed, the use of materials, machines and human resources will be more efficient.

(5) Teaching/Instructing Skills

A supervisor, although individually has a lot of knowledge, has good job skills, but if he does not have the skills to teach/give instructions, it will be difficult to convey instructions to subordinates. If that happens, what is conveyed by the boss cannot be conveyed properly, so that the work done can make mistakes. So the work area that is the responsibility of a supervisor will not achieve maximum results, because the supervisor achieves results through his subordinates.

This skill is a useful skill to train employees to be reliable. Can do the job quickly, according to the expected quality and safely.
If this skill is mastered, the following benefits will be obtained:

- Can reduce waste, repair and defective products (NG)
- Reduce work accidents
- Reduce damage due to equipment and work facilities

Training Within Industry is a training that discusses/trains how a supervisor can improve skills in these 3 things. For the Skill of Handling People, the TWI - Job Relations (TWI-JR) Training is designed, while for the Skill of Doing
Continuous improvement designed TWI Training – Job Methods (TWI-JM) and for Teaching Skills/Providing Instruction, TWI Training – Job Instruction (TWI-JI) was designed. All are basic skills that a Supervisor must possess !!

In its development in Japan, in addition to the skills of a supervisor is the skill to make the job safe, regarding this TWI – Job Safety Training (TWI-JS) is designed.

This book will discuss specifically about TWI – Job Instruction (TWI-JI). Why is this skill mandatory for a Supervisor? Even though there is a lot of knowledge and skills that are possessed and mastered, if you do not have TEACHING SKILLS, then everything you have is not conveyed well. As said above, the supervisor achieves his work target through other people, meaning that if the work to be done is not taught/instructed properly, then the result will be ZERO or NOT MAXIMUM.

REST AND REFLECTION

Flowing

During the training of Hiroyuki Hirano (Initiator Just In Time (JIT) concept), conveying the universe What we live in today consists of streams. The stream here means not a specific religious sect, but yes... the flow of water, the flow of air, the flow of blood, the flow of people, the flow of vehicles, the flow of goods, the flow of information, the flow of money... etc. Well, how do we make everything run normally, both in daily life and in human health life? The trick is to smooth out the "flow"?

Try to imagine/see or listen from the news, how did there get a traffic jam? Because the flow of vehicles is not smooth. How the width of the road is not the same (maybe on the bridge the road is narrow) or because the speed is not the same (maybe the vehicle that is slow on the right side is supposed to be for a vehicle that runs fast).

His opinion, which is also written in the book "Nagare ka", is that how to improve the efficiency of a job is to stabilize the flow, at least from the initial process to the final process, the amount of work (processing time) charged is the same, so that the results are stable.

Hopefully infrastructure development makers always understand this concept, because there is no point in adding toll gates if the roads before and after the doors are also narrow. Just move the problem. The analogy can also be applied to other "streams".

Those who think it is impossible, do not hinder
those who are working on it
*- **Chinese proverb** -*

Chapter 3.

Simulation TWI- Job Instruction

In this chapter I will write it as if you were in my training room to enjoy how the TWI-JI simulation is carried out. The simulation is about the Cable Winding job.

Chilmar (CH): Alright, now I'm going to do a simulation for TWI-Job Instruction or TWI-JI. I want one of you to come forward as a victim... Uh... That is, volunteers in this simulation.

As in other trainings, the atmosphere of the live class was a bit quiet, no one showed a hand to be willing to go forward as a "victim", and then I continued.

CH : TWI training is a type of skill improvement training, just hearing or seeing will just be knowledge for you, it will not be your skill. So TWI Training is designed 30% theory and 70% practice. Besides you seeing and hearing, you need to feel to make it your skill... So again, who is willing to be the first volunteer.

A man named Avicenna raised his hand,

Avicenna (AW) : I am Sir, I am willing to be the first victim.... My name is Avicenna Wisesa, called Cenna.

The opposing participants laughed and applauded for Cenna.

CH: OK, Cenna. I'm going to show you a job.
This job is cable winding. Please note.

After that I showed how to wrap the cable and after the demonstration was done I said to Cenna.

CH: Now please do the work that I have done.

AW: Haaah... How about it.

Cenna does the cable winding, but the cable winding is not the same as the cable winding that I have shown.

CH : How is Cenna? How are the participants? Are the results of the cable wrapping carried out by Cenna in accordance with what I taught?

AW + Other Participants : Beluuuuuum. Different... Not at all.

CH : How do I teach ?

AW : Teaching with demonstrations ...

Other Participants: Teaching by showing.. !

I wrote down the words that the participants mentioned.

CH: Yes... I teach by just showing...
How did the result ?

AW + Other Participants : BIG NOL.... Ineffective.

CH : Exactly, it turns out that TEACHING BY JUST SHOWING results is ZERO BIG or Ineffective. But have we ever taught or given an instruction to a subordinate in this way.... For example: Hey Budi, here. I teach you how to do this job, pay attention.... After Budi finishes paying attention, we will say again, "Can you do it, Bud?", Well, please do it.... Have we ever done something like that?
Most likely you have done it. We often because we are busy or otherwise teaching about a job just showing how a job is done.... Especially with the final emphasis words... Can you?
It turns out that way.. the result is not effective at all.

AW + Other Participants: Pernaaah. In fact... seriiing....

CH: Well.... The result is natural if it does not achieve the goal. Thank you Cenna, please come back to the place. Next, I asked the second volunteer to come forward. I also want you to move forward sincerely... not because they were appointed.

Another participant named Fadhil raised his hand.

Fadhil (FA) : I, Sir... My name is Fadhil Nur Averroes... commonly called Fadhil.

CH: Please Fadhil's next "victim" to come forward.

While waiting for Fadhil to move forward, I prepared

CH: Fadhil, now I'm going to teach you the job by saying it to you, listen and do what I say.

FA: Okay, sir.

CH : 1. Take an electrical cord

(Fadhil starts to pick up the cable that was placed on the table)

CH : 2. Hold with your thumb and index finger of your left hand at a position 15 cm from the top, position the cable so that it is straight.

(Fadhil did what he heard)
CH : 3. Unravel the cable at the top by branching it into two cable lines with the thumb and index finger of the right hand.

4. Uphold the two cable lines with your thumb and index finger of your right hand.
5. Hold the cable at the base of the branch.

(There was still no difficulty for Fadhill to do as he was told).

CH : Next 6th. Hold the right wire with your right hand, twist it so that it makes a circle clockwise.... (This is where Fadil starts to get confused... Turn it to the right which... power... Make a circle clockwise... where?),.. Cross it by placing the end of the cable slightly on the front. (Fadhil is getting confused about what to do...)

CH : 7th, Press the crossing point, make the diameter of the circle approximately 3 cm. Position the end of the cable is about 4 cm away from the left cable.

FA: Wow... "Give up, sir. I'm confused as to what to do...
(by showing his confused face)

CH (to Fadhil + other participants) : What kind of teaching did I just do to Fadhil ?

Participants : Teaching with instructions... Teach by talking, sir..

CH: That's right. I was teaching by saying.
How did the result ? Didn't it work?

Fadhil + Other Participants: No, Sir. Big Zero.. Ineffective.
CH : It turns out that the way of TEACHING BY JUST SAYING is also ZERO or Not Effective. Even though it is not effective, have we ever done it? For example, you teach Eko how to make fried rice. Eko... If you want to cook fried rice... First take the refrigerated rice... continue to prepare the pan that has been oiled, when the oil is already a bit hot... Put the spices in the pan... etc. etc.

Participant : Often, sir.... I'd like to make a Fried Rice Salad with a Fried Rice Salad. Which is ... fried rice.. Squirrel.. (Soft fried rice)..

CH: Often, we come back again because we are busy or feel "effective" to teach something or give instructions with just words and the results are as you have seen.

CH: Next, I ask the third, last, volunteers to come forward. This time I show you... I ask Mas Algazel Aqilla to move forward...

Algazel came forward by commenting,

AA: Wow.... The last one to be worked on... Introduce my name Algazel Aqilla, commonly called Gazel.

CH : No. This time I will simulate how to teach TWI-style. All my participants asked to see the whole of what I was doing... not looking at how the cable is wrapped. We in front of here will play drama, as if I am the Supervisor in the assembling section of the light cables, and Gazel is a new employee who has only entered 1 week.
Do you understand Gazel ? Let's get started...

AA: Understand, sir. Go ahead.
TWI-JI's simulation drama begins...

CH : (while reaching out to shake hands with Gazel) Introduce my name Chilmar, I'm a supervisor in the light cable assembly department. I've been in this section for 3 years.

AA : My name is Gazel, Sir

CH: When did Gazel come in?

AA: It's only been a week. (Because it's still new.. still feel tense..
he said).

CH: ooh... I see. Where do you live? What did you go up to the factory?

AA : My house is near Sir. I contract around here. It is only a 10 minute walk.

CH : Have you had the hard time living here yet? Have you made

friends? AA: Not yet, sir.

CH: Ah... cook. Yesterday was the time for new employee orientation.... I see you're so excited to talk to that sweet new employee...

AA : It could be. Father. (A smile on Gazel's face)

CH : Well Gazel, today I'm going to teach a job on Cable Winding. Is Gazel already aware of the work on this cable winding?

AA: Not at all, sir.

CH: I will explain about this cable winding. This cable socket is commonly used for chandelier... It is usually used in stalls, but maybe it is a bit rare now. If for example we open this socket then we can see the end of the cable screwed. The purpose of the cable is to be wound at a position 15 cm from the end of the cable so that the load rests on the point of circumference, not on the end of the cable. If it rests on the end of the cable, what if there is a heavy load/heavy impact, the end of the cable cable will gradually come off... What if it is released?

AA: Wow... That danger, sir. It can be a short circuit..

CH: That's right, if one end of the cable comes loose it will hit the side cable and can cause a short circuit and cause a fire. So this cable wrapping job is very important. If not done properly, it can cause a fire... Remember once again, even though this work may seem trivial, it still has an important meaning for salvation.

Next we will teach about the work of cable winding, before I want to ask, if you are learning which position makes it easier to learn, is it from the left side or from the right side?

AA: From the right side, sir.

CH : Now I'm going to teach cable wrapping by JUST SHOWING, yes... Please see ?
(I showed you how to wrap the cable without a word of explanation)....

After it is shown,

CH : How? Does it need to be repeated?

AA : Repeat it again, sir.

CH : Okay, I'll repeat.... The next step I will explain the wiring by mentioning the MAIN STEPS ONLY...
For this job, there are 5 Main Steps. (While demonstrating how I mentioned the main steps). Step 1 is, Unravelling the Selection... (twist the cable I describe), Step 2 is to Create a Right Circle... (right circle created), Step 3 is Creating the Right Circle... (the left circle is created), the 4th Step is Insert into the circle (the end of the cable from the left circle is inserted into the right circle), and the 5th Step is Tighten... How? Do you need to repeat?

AA : Repeat once again Sir.

I repeated the above explanation once again, after I noticed the look on Gastel's face that seemed to have begun to understand I continued the explanation.

CH : Next I will explain the IMPORTANT POINTS in each Main Step if any. (While re-demonstrating how to wrap the cables, I explained the Important Points). Starting from the 1st Main Step, which is to outline

the ... In this main step, the important point is 1, which is **15 cm**. (I widen the distance between my thumb and index finger). The width of this size is approximately 15 cm....

(While making a right circle) For the 2nd main step which is Creating a Right Circle... There is 1 important point, namely, **in front of the twisted cable**. (placement of the cable end in front of the twisted cable).

(While demonstrating to create a left circle) For the 3rd main step which is Creating the Left Circle... Here are 3 important points. The first important point, **Pull forward** (while demonstrating it).
The second important point, **Under the extended cable** and the third important point, **Behind the twisted cable**.

Let's move on to the 4th main step, which is Put it in a circle.
For the 4th main step, here there are no important points.
Then for the 5th main step, there are 2 important points. The first important point, **The ends of the cable are flattened** (while exposing them) and the second important point is **that Both circles are pulled down**.

Need to be re-energized?

AA: Ask to be repeated once again, sir.

I repeated the explanation of the key points and demonstrated them once again. After that, it is continued to the next stage.

CH: After explaining the important points, I will explain the REASONS for these important points. For the 1st main step, there is 1 important point, which is 15 cm. The reason for this important point, 15 cm is **SUCCESSFUL** as per the specifications for this cable winding.
The standard is to wrap it at a position 15 cm from the end of the cable.

For the 2nd main step, there is 1 important point, namely in front of the twisted cable. The reason for this important point is that the winding of the cable **is SUCCESSFULLY** carried out according to the specifications.

For the 3rd main step, there are 3 important points. The first important point, Pulled forward, the REASON of this important point **is to FACILITATE** movement to the next process. The 2nd important point, Under the protruding cable and the 3rd important point, Behind the twisted cable, the REASON of these important points is for the cable twist **to be made** SUCCESSFULLY.

For the 4th main step, there are no important points. And the 5th main step has 2 important points. The first important point, the cable ends are flattened so that **they WORK** according to the specifications.
As for the second important point, the two circles are pulled down for the REASON so that the cable wrapping knot **is SUCCESSFULLY** made according to the specifications, which is 15 cm from the end of the cable.

Need to be repeated for the explanation of the REASON of each important point?
AA : (With a happy face) Wow... if this one, there is no need sir.
Instantly sticky on the head.

CH : Not playing.... ☺☺. (I also made sure that Gazel seemed to understand what I was saying). Then we move on to the next stage.

The next stage, I ask you to practice cable wrapping by showing me to you, without explaining anything.

(Gazel practiced, the way of winding cables. Because it is the first time to practice it, there are still mistakes made. At that very moment, I immediately helped fix it to the right way)

After the winding was over, since Gazel hadn't done well yet, I asked him to do it again.

CH : Gazel, please repeat the same thing again...

Gazel did it once again and did it right.

CH: Next, please show Gazel by mentioning the MAIN STEPS ONLY.

(While demonstrating the wiring, Gazel briefly mentions the main steps only).

CH : The main steps have been successfully mentioned. Next, demonstrate by mentioning the IMPORTANT POINTS of each main step if any.

(Gazel goes on to mention the key points of each of the main steps)
CH : Finally, explain the REASON for each of these important points.

(Lastly, Gazel explains the reasons for each of the key points).

CH: I see, you can already do the wiring work, you can mention the main steps, the key points and the reasons for the important points... Now I DECLARE YOU PASSED for the wiring job.

From now on, Gazel will give me work as many as 1000 wires to wrap. This work must be completed today..., not overtime....

AA: Huh? 1000 cables are not overtime?

CH : That's right. ☺. Later while doing this work, if there is anything you want to ask, please ask. When you ask, I ask you to ask me or Khalid, the Line Leader here. If you ask me or Mas Khalid, you will be taught the same way. Don't ask others.

As long as you're doing this job, since you're just starting out, I'll check in on your work every 30 minutes. And don't forget once again, I remind you, I am happy when my men ask if there is something that is not understood, rather than feeling "understood". In Indonesia, when we are in school, we are not accustomed to asking questions. If we ask questions, we like to be scolded or mocked for being "stupid". But even more STUPID is a person who "feels like he knows", when in fact he doesn't understand... Ask questions when in doubt. Tomorrow on the second day, I will reduce checking your work, if today every 30 minutes, tomorrow I plan to check your work every 1 hour.

OK, yes... Happy work. (shaking hands)
AA: Thank you, I will.

REST

Horizontal or Vertical ?

Once, while reporting the progress of production to the Japanese management, an official from the Japanese headquarters commented that if the structure was made vertical, it would make the work easier. Hearing that comment, I still don't understand what it means.

Once, when I held the position of Production Manager in the Wood Working 1 (WW1) section where I was in charge of the Vacuum Press and Painting process section, my supervisor sometimes complained, the number of goods he processed was always problematic by the next process, namely the Sub Assy process, coincidentally for the Sub Assy process was a member of the Sub Assy group which was under the Wood Working 2 (WW2) section held by other Managers. What is complained about is that the amount of production is still lacking, which is said to be caused by defective goods/NG (No Good or defect). While the previous process (Vacuum Press) stated, the production amount was appropriate, including the replacement of the NG.

To overcome this condition, I took the initiative to propose to
The WW2 manager at that time, what if the control of the Sub process Assy whose material is from the Vacuum Press process is held by the Vacuum Press Supervisor. Oh... go ahead, said the WW2 Manager at that time. How does the effect ?... It's not a game... since the process of Vacuum Press, Painting and Sub Assy (part of VP) combined, the material complaints of less than the Sub Assy and the complaints of NG materials are not addressed, decreasing drastically. How could it not...? The Man Who Was Born,
The supervisor is the SAME person...

At that time I was only aware of the VERTICAL and HORIZONTAL organization... What I did above was to change an organization that was previously HORIZONTAL to VERTICAL. The organization from the beginning to the end is held by a superior, which is called the VERTICAL

organization. By verticalizing the organization, problems that arise because there are organizational barriers, can be solved immediately... If I were to analogize again... perhaps in what is sought on the concept of ONE STOP SHOPPING, or the management of ONE
ATAP, etc.

Please choose which organizational structure to use... Combine in a HOROSONTAL way ? or combine VERTICALLY?

The meaning of a communication is the response you get.

- ***NLP Presuppositions*** -

Chapter 4.

SIMULATION DISCUSSION and TWI-JI CARD

CH: Now that we're talking about what the simulation shows, let's talk about the sequences that were done. What was the first thing to do?

Participant : Teaching how to wrap cables...

CH : That's right, but what are the sequences that I do... First what do I do?

Participant : Get to Know... Shaking hands, introducing names.

CH : Then ?

Participant : Explaining about work....

CH: Before that. Earlier I mentioned the type of work that is taught.

After the question-and-answer process that is repeated and finally together all participants can, the sequence of the process at the time of simulation based on the opinions of the participants is as follows.

The sequences of the processes carried out during the simulation, according to the participants, are as follows:

1. Get to know, shake hands introduce names
2. Describe what work to be taught
3. Ensure knowledge about the work.
4. Mentioning the importance of the work.
5. Ask which direction you are comfortable from when studying
6. Demonstrate work, done 2x
7. Teaching the work by mentioning the main steps, done 2x
8. Teaching work by explaining important points, also done 2 times

9. Explain the reasons for the key points

CH: Next, what is the order of the process?

10. They were told to do it with demonstrations only, or silently.
11. They were told to do it by mentioning only the MAIN STEPS.
12. Asked to do it by mentioning the IMPORTANT POINTS of each main step.
13. Told to do it by mentioning the REASONS of each IMPORTANT POINT.

So what's next?

14. Next, they were declared PASSED to be able to do the work.
15. After that, he was told to work as many as 1000 units without overtime...
16. Setting who to ask when there are questions
17. Checking regularly
18. Advised to ask questions when in doubt
19. The next check is reduced to once every 1 hour.
20. Finally, greetings...

CH: We have discussed the sequence of processes carried out during the simulation. The next question is, if these sequences are to be grouped, how many groups can be created?

Participants : 3 groups of Mr. First Group no. 1-9, Teaching, Second Group no. 10-13, Practice and Third Group no. 14-20, Giving work.

Other participants: 4 groups of Pak. First Group no. 1 – 5, Introduction, Second Group no. 6 – 9, Teaching, Third Group no. 10 – 13, Practice and Fourth Group no. 14 – 20 Follow-up.

CH: Since there are 2 main opinions, let's vote to determine which one has the most votes.

(Based on the voting results, it turned out that most of the participants voted, the simulation mostly chose the grouping which could be divided into 4 groups.

CH: If each of these groups is as you agree, all are divided into 4 groups. What is the ideal name to represent the processes carried out in each group.

Participant: Just like before, Sir, Groups 1-5, Introduction. Groups 6-9 Teach the Work, Groups 10-14 Demonstrate what is taught, Groups 15-20 Follow Up.

CH : OK, I appreciate your decision. My group 1-5 is short group A, my group 6-9 is short group B, and so on. My next question is whether in the teaching of a job we can change its order. This means that group B is done first, then Group A begins, then group C and finally group D. Is it possible ?

Participants (simultaneously) : No.

CH : Well, what about the orders in each group?
Can it be changed?

Participants: For groups 6-9 and groups 10-14, it is not possible to change but for groups 1-5 and groups 15-20, it is still possible to change the order.

CH: That's what TWI-Job Instruction looks like. In teaching TWI-JI work, there are 4 stages of how to teach. The stages in TWI-JI are as follows:
Stage 1 .. Prepared to learn
Made comfortable

By getting acquainted and talking, we prepare participants to be ready to receive the lesson. As in sports, we know "warming up". The purpose of warming up is to prepare to be ready to make unusual movements, so as not to cause the wrong vein.

Mention what work to be done

Clarify to those who are taught the work they will do in the future

Check the level of knowledge of the job

To find out the knowledge of the job and the level of knowledge. This can affect the method of teaching/instruction.

Created the feeling of wanting to learn the job

Here it is explained/explained if the work is done well or badly to explain the importance of the process being done correctly.

Placed in the correct position

A comfortable position for people to be taught will make it easier to absorb lessons. Meanwhile, the correct position (not facing each other) does not cause misinterpretation. When done face-to-face, the direction to the left of the teacher is the direction to the right that is taught, and vice versa. For this reason, it is not recommended to be positioned face to face.

Stage 2 .. Describe the job

Mention, demonstrate and explain in writing one step by one the main steps.

In the way of explaining the work during the simulation, we explain by just showing, then explaining by mentioning the main points. If needed, the necessary explanatory pictures are also described at this time.

Clearly emphasizing its important points

Then the important points for the success of the work, or the ease of implementation and for work safety are explained. By mentioning the important points and reasons for these important points, it is hoped that people will be taught to remember the steps from knowing what the important points are.

Clearly, without missing anything and patience This is important, because the purpose of teaching is to convey something so that the

person being taught can do the work independently. Patience at the beginning will reap the results at the end.

It is not forced beyond his ability to comprehend. Often the person who teaches says, "I have taught it, is he the only one who can't?". Is that true? It's not that teachers are less creative to try different ways. For example, if we teach people who are elementary school graduates, for example, by using foreign absorption words such as "integration", "synergy", "diversification"... yes... Words that end in "si", do the person understand? Isn't this a form of coercion, the person must understand the words we use.
On the other hand, the purpose of teaching is "to convey something, so that the person being taught can understand and be able to do what is taught". I remind you again, the purpose of teaching is not "teaching" itself. This means that the language of delivery must be adjusted to his "ability to understand". This is one of the philosophies that needs to be understood.
Easy but difficult to run.

Stage 3 .. Told to practice
When practicing... Immediately fix the wrong part
At this stage, the person being taught is asked to practice it "only". If there is a mistake in practice, the mistake is corrected immediately, so that from the beginning it is taught in a "standard/appropriate way".

While practicing, he was told to explain the work
By practicing while saying, the main steps of the work taught will increase the memory of the standard of the work.

Be told to practice once again, while mentioning important points

Mentioning the important points will increase understanding why the steps of the work must be carried out. So as to reduce the opportunity for the person who is taught to take shortcuts if one day he already understands the job. By understanding the important points, the

person being taught will understand that if the work steps are not carried out, there is a possibility that the work is not in accordance with standards, becomes difficult or will endanger safety.

Check until you are sure that you understand

Well... Here it is the role of the teacher to determine whether the person being taught already understands or not. Here the teacher can see the "body language" of the person being taught. There is a possibility that people who are taught, because they are bored, etc., will answer "already understand" when asked "have understood or not". So what determines the "pass or not" of the person being taught is the teacher himself. If it is declared that the teacher has not passed, Stage 3 can be repeated starting from an order that has not been understood.

Stage 4.. Following up on the condition after being taught

Told to carry out the work that has been taught

Here, the teacher or instructor teaches what work will be handled next. How much is it, until when it must be completed.

Assign people to ask questions when something is not understood

Then emphasize once again to the person being taught, if there is a question, only ask the teacher or the person determined by the teacher. Asking others can cause confusion, because you may get answers that are different from the standards taught by teaching.

Checked repeatedly

Conveying to the person being taught, the teacher will regularly check what has been taught. It also provides comfort to the person being taught, that he is still being helped in doing what has been taught.

Made to ask questions

This needs to be conveyed, first for the comfort of the person being taught. Often people feel, "if I ask, I'm stupid" or "if I ask, I'll be scolded." With a statement from the teacher so that if there is a problem to ask, reduce the feelings above, so that problems can be conveyed and the teacher can help to solve the problem.

Reduce guidance gradually

Finally, when the person being taught is used to doing work. The teacher said that the guidance will be reduced because the work has begun to be done independently, so there is no need to be supervised as often as when it is the first time to learn.

Employees until no understand, because guitar not teaching it

This is the most difficult PHILOSOPHY in Training Within Industry – Job Instruction. If you can accept this, you can implement TWI well.

The above philosophy conveys that, if the teacher conveys some guidance about work, instructions to do a job, does tutoring, etc., but what is taught is not understood or not done according to what is conveyed/taught, then it is the TEACHER who is WRONG. To be more precise, the INSTRUCTOR has not taught according to the style of Training Within Industry. Perhaps teachers are less creative in using the pictures needed for people who have a tendency to understand a preference for PICTURES. Or maybe the teacher has not conveyed it in a LANGUAGE that the person being taught understands. Easy language that can also be associated with the images shown. Or the opportunity to work DIRECTLY needs to be increased so that for people who tend to easily remember that if they do it directly, it will be more facilitated. (I will tell you an example of this separately, Memorization example).

This philosophy is active, because the teacher must first reflect on himself, not blame the person being taught. The teacher or self-instructor must understand, whether the way of delivery is right or not, because once again I emphasize, the purpose of teaching/giving instruction is not to teach or give instructions itself, but there is another purpose so that the person who is taught/given instructions, understands it so that he can do exactly according to what is taught or instructed to him.

HOW TO TEACH THE JOB

In TWI, a teacher must prepare everything. There are 4 points in the preparation, namely:

1. Creating a Training Plan Table
2. Outlining the Job
3. Preparing All Her Stuff
4. Organizing and setting up the workplace

1. CREATE A TRAINING PLAN TABLE

For the training plan table, before the supervisor needs to map out who can do what work can be done as in the example below. In addition, it is necessary to list the conditions that will occur in the next 1 or a few months so that a training plan can be made.

TRAINING PLAN TABLE

Let's discuss the example of the training plan table above.
This example is an example of training in the Education Training section with a supervisor named Ita. In this section, Ita currently has 4 subordinates, namely Sari, Tuti, Nina and Tia and there are 5 types of work that are done, namely: Filling out Good Request Slip, Filling in Training Recapitulation, Filling in training track record data, filing ISO documents and making training schedules. The abilities of each employee as stated in the matrix.

From the matrix, it can be seen that Sari and Nina have the ability to do all five types of work while Tuti only has 4. Meanwhile, Tia (new employee) has only mastered 1 job. Besides that, there is a condition where as of December Nina will be transferred to another part.

From these conditions, Supervisor Ita saw that if Nina was mutated, there was only 1 person who mastered it for the job of making a

training schedule. Meanwhile, only 2 people have mastered the other jobs because Tia has only mastered the work of filling out the Request Goods Slip. With these conditions, Ita decided to train one more person for the job of making a training schedule. He decided to train TUTI, for the work of MAKING A TRAINING SCHEDULE, until NOVEMBER 8.

Then because of Tia's ability that was still worrisome, Ita decided to train TIA, for the work of FILLING OUT RECAP OF TRAINING PARTICIPANTS and FILING ISO DOCUMENTS, until NOVEMBER 23.

This kind of planning table must be prepared by considering one's current work ability, or changes/improvements in production plans or plans for changes in organization, mutations/resignations, etc.
With this Training Plan Table, WHO can be planned, training will be given on WHAT WORK and the training will be carried out UNTIL WHEN. This is the preparation that is needed before the change conditions occur.
(Examples of other training plan tables can be seen in the appendix)

After the Training Plan Table is made, what must also be prepared is the JOB DESCRIPTION SHEET.

2. Outline the Job

To teach work, teachers need a standard order of work to be taught. This standard of work order is required by teachers as a "cheat" when teaching in the TWI way. The standard of the work order is not to be given to be done in accordance with the order.

The following is an example of a job description for cable winding:

Main Steps	Key Points
1. Unravel the twists, straighten them	15 cm
2. Create a right circle	In front of twisted cables

3. Create a left circle	Pull forward Through the bottom of the protruding cable Behind twisted cables
4. Insert it into a circle	
5. Tighten	Both ends are leveled While lowering the circle

How to make a job description?

The first step is to write down all the main steps of the entire process.

1. Take the first major step
2. Think about the main step – while talking to yourself out loud – Has there been any progress in the work?
   - What movements are performed?
   - Can it be the first step?
3. Write the movement (step) on the job description sheet
4. Repeat the sequence no. 1 – no. 3
5. Keep doing this until all the main steps are written down

The thing that needs to be considered in writing the main steps is that the language is easy and the sentences are short. Why should it be easy and short, because to be taught and the person to be taught will be asked to repeat the words when he practices them. Difficult language and long sentences will make it difficult for people to be taught to remember and repeat them. His words will change.

The second step is to write down the important points in the following way:

1. Doing the first step
2. Finding the points that matter
   - There are 3 important points requirements.
     a. Determining whether the job is successful or not
     b. Makes work easier
     c. Determining safety in the workplace
   - Think, when you have found 1 thing, say.

3. Ascertaining whether this is an important point – Speak to yourself out loud
   - If ? Why? (Ask yourself and Answer yourself)
   - Of the 3 important point requirements, which one is suitable? Say
4. If it is appropriate, writing is an important point in the step.
5. Make sure to go back to doing no. 2, for the first step
6. If there is one, do it again no. 3 and no. 4.
7. After all the important points for the first step have been written down by doing from no. 1 - no. 6 for the second step.
8. Do no. 7 for the next step.;

The thing that needs to be considered in writing important points is that not all main steps have important points. There are 3 important point requirements, namely:

a. For job success
b. Make work easier
c. For work safety

Furthermore, in the preparation that needs to be considered is to prepare all the goods

3. Prepare all the belongings

The teaching philosophy in Training Within Industry is to prepare all the necessary items at the time of teaching. The items needed when teaching are as follows: a. Job description document

b. Images that are required when describing work. For example:
   Detailed drawings of components, drawings of supporting tools etc.
c. Materials needed when teaching.
   Teaching a job or instructing a job should be explained whenever possible using the actual material and all the material is complete before teaching. Do not forget the material, so that it is only prepared or sought when teaching. This will create a pause in teaching and reduce the effectiveness of learning outcomes.
d. Machinery/tools used when teaching

The machine/tools used must first be ensured that they are ready to be used when teaching. No problem and safe to wear.

e. Other tools

Other tools can be tools for presentations such as projectors, whiteboards, markers, writing paper, etc.

After all the items are prepared, the last thing that needs to be prepared is to organize and prepare the workplace.

4. ORGANIZE AND PREPARE THE WORKPLACE

Organizing and preparing the workplace is preparing a lay out for training, so that the training is carried out according to the conditions in the actual workplace. The layout includes, the position of the machine and/or tools, the materials to be processed are seen from the position of the person doing the work.

By arranging and preparing the workplace/training according to the existing conditions, it is hoped that the people who are taught will always do according to the existing conditions and maintain these conditions well.

Setting and setting up conditions for training should be done by the person who is teaching. So the person who teaches can directly ensure the readiness of all teaching materials, ensure the condition of readiness of the equipment that will be used when teaching and prepare a layout, the teaching process as desired by the teacher.

For the record, writers usually prepare 30 minutes to 1 hour in advance to prepare and ensure everything so that the teaching/training can run smoothly.

REST AND REFLECTION

Owari ga yokereba, subete yoshi

The part I handle is the Wood Working part often considered As Sections The always result in delays. If there is a delay in the final process, namely the Final Assy, often the previous process will become months to be used as a scapegoat.

If you look further.... The problem... Yes. as I wrote in REST and REFLECTION earlier, namely because **the control is "made" difficult**, where **the process is not clear the flow**, starting from where it starts and continues to where and finally where, . **The flow of processes is also hampered**, because there are processes that become "bottle necks". Because the process uses a high-tech machine, many parts enter the machine and are then channeled to various processes. To put it simply, the machine works 3 shifts (24 hours), while the before and after process only works 2 shifts. So the material before the process is piled up, and after the process there is also a lot of stock. And because **the organization is horizontal**, problems arise because of organizational barriers...

Now for the new project in the Black Poly Section, the President Director is determined to make it... FLOWING... From the beginning to the end of the process, the flow of input goods follows the output... (flowing), and the organization diverts... The result? Thanks to the repairs made by the Assistant Manager of Black Poly at that time, Mr. M.
Andriansyah... A model of the expected work area was realized...
A proud ending... as the Japanese proverb says: Owari ga yokereba, subete yoshi... (**If the end result is good, everything is good**).

Employees don't understand, because
we don't teach them

*- **Training Within Industry** -*

Chapter 5.

Frequently Asked Questions about TWI

1. What are the benefits of Training Within Industry?

Answer :

TWI is a four-stage method in which each program is made simple, straightforward and easy to implement.

If the supervisor uses the right job training method, it means that the work done will be standardized and the standards will be followed.

Creating basic stability in operations means that the results or outputs of each job can be predicted.

When supervisors do the details of the work, it also allows them to eliminate waste and make effective use of materials, machines and people. And the emphasis is on using our minds, not in a "text book".

2. How to develop TWI for training with a large number of employees?

Answer :

TWI-style teaching/instruction methods do seem individualistic and indeed that is what should be done if you want to produce maximum impact.

But modifications can be made by grouping people with different character tendencies. For example, it is grouped from the same level of understanding, or grouped based on education level or grouped based on language skills and others.

With this grouping, it means that there is a possibility that the main steps of the Job Description Sheet used will be different. For example, for new employees/people who are new to the job, the main steps will be more detailed than the person who has known about the job. For the people mentioned last there is a possibility that the main steps can be shorter.

3. What is the form or syllabus of TWI-JI training?

Answer :

For TWI-JI training for practitioners in accordance with the Manual Book, the recommended method is 5 days x 2 hours. Every day is done after working hours or during working hours. The ratio between theory and practice is 30 to 70. Why is that? The goal is that what has been learned on the first day can be immediately practiced in the workplace on the second day.

On the second day, although there was still an explanation of the theory, in principle he started to conduct training in the practice of teaching/giving instructions in the style of TWI.

In learning in Indonesia, maybe the training pattern can be adjusted to the existing conditions, because in some countries it has been done with different time patterns and number of days, but still in essence Training Within Industry training is SKILL training, not a seminar that informs what TWI is, so the time for participants to practice how to teach in the TWI style needs to be prioritized.

4. Does TWI have a patent?

Answer :

As far as the author knows, TWI does not have a patent. Perhaps the copyright is books published by institutions that translate the TWI Manual, where the copyright is for the translation carried out.

5. Does teaching workers in the TWI-JI way have to be completed in the same day?

Answer :

There is no requirement that what to be taught must be completed in the same day. If the theme to be taught is a lot and requires time, it can be done as in the example below. Below is an example of a work using a micrometer that needs to be taught and requires a long training time.

Yes	Item	Day to	Levels used

1	How to use a micrometer and Explanation of the parts	Day 1	(1) → (2) → (3) → (4)
2	Each2 Scale and its relationship	Day 2	(1) → (2) → (3) → (4)
3	Easy measurement	Day 3	(1) → (2) → (3) → (4)
4	Difficult measurements	Day 4	(1) → (2) → (3) → (4)

So for the first time starting from stages 1 to 3, the 2nd and 3rd days are only stages 2 and 3, because the teaching process has not been completed.

Only on the 4th day, the teaching process was completed using the 4th stage to follow up on the conditions that had been taught.

As the closing of the last day.

5. Where can I study TWI?

Answer :

In Japan, TWI learning can be done at Nihon Sangyou Kunrek Kyoukai which is located in Shibuya, Tokyo, Japan.

In the United States, TWI Summits are periodically held: http:// //www.twisummit.com/, at the time of the Summit training sessions are held for TWI-JI, JM, JR and JS. In addition, many other training institutions organize trainings whose website addresses can be seen in the appendix.

Meanwhile, in Indonesia itself, there are not many training institutions that organize Training Within Industry trainings. The author's estimate, because there are still few trainers who learn to become trainers for Training Within Industry, because the Training Within Industry Manual that can be downloaded from the TWI Service (**http://www.trainingwithinindustry.net/)** website, for example, is actually a manual used as a trainer'**s handle** when conducting TWI training. The manual is distributed during training as a trainer, not a manual for training as a "practitioner". The author himself tries to

provide trainings both publicly and in-house, one of which can be done through Better Mind.

6. Should I have a TWI certificate to be able to do/teach TWI within the company?

Answer :

Because the principle or philosophy of TWI is Learning by Doing, the most important thing is to do 4 stages summarized in each module.

In the author's opinion, there is no need to obtain a certificate specifically to assign a TWI Master trainer in a corporate environment as suggested in the book Toyota Talent, for example.

Actually, if someone can understand, the TWI modules that can be downloaded above, he does not need special training as a trainier. But the tendencies of each person are different. There are those who are comfortable if they have SEEN it, or have HEARD it and or DONE it. So it would be nice if the TWI Master trainer received special training to be able to add insight to be able to bring TWI training according to modules that are close to "perfect", since TWI was summarized and taught.

7. What is the impact of TWI training?

Answer :

The biggest impact that I felt from TWI was the improvement of the mindset. If from TWI training the results are obtained that productivity increases, NG decreases, work relationships improve or work safety increases, it is a side effect of TWI for the work environment.

The biggest impact is the change in the mindset of each individual who takes part in the TWI training, about how to humane teaching/instructing patterns, the mindset of how to take steps to make improvements, what stages are humane to find the root of the problem of human relationships and how to solve the problem, or find the root of the problem that causes work accidents, It is not the direct cause, then how to prevent the root of the problem.

With this changed mindset, if the mindset is believed to be "GOOD", it is likely to be applied in all aspects of life, both in the company environment and the family environment. As a result, an integrated impact can be obtained.
So back again if I ask what is the impact of TWI?
CHANGE OF MINDSET, which will be a person's SKILL.

8. How is it different from OJT? Which is better?
Answer :
On the Job Training. On the Job Training is a method to master the job by directly immersing yourself in the area/field of work to be mastered. Both TWI and OJT are just a method to achieve goals. If the method to be carried out is not consistently used, of course the results are not / less effective. Again the main thing is PURPOSE. Method is the way to achieve the GOAL.

In OJT, if there is no place to ask if there is a difficulty in what you want to learn, there is a tendency for people to learn to see how A, B or C are doing. If this is done will cause confusion in the person who is learning, which is the right way. And it's possible that he will make his own way. This will make the work unstandardized, resulting in non-standard results as well.

REST AND REFLECTION

Commitment

While visiting a musical instrument factory in Pasuruan, Surabaya, every time I come I always get the opportunity to be escorted directly by the President Director, because I usually come with Japanese staff from Jakarta.
Whether it was his habit or not, or to show us, his guest, he always picked up small garbage scattered in his factory environment. Wow... It's not my word, in my heart. Rarely do I see the President Director, personally picking up small garbage that is scattered. Here's an example...

This is what always comes to mind... and if you look at the concept more closely, it is similar to the concept of Ki Hajar Dewantara.

1. In the Presence of the Three Corners
2. On the other side of the Atlantic, there is a carousel
3. Ready to Serve

The free translation (because I'm not Javanese... ☺). In front of giving examples, in the middle of encouraging and behind providing support. But even though there is already a concept of Ki Hajar Dewantara's philosophy, for companies or countries that have not yet and are developing.... Yes.. Concept No. 1 must be prioritized...

So... people who are entrusted by others ("supervisors") to be guided, whether it is Superiors (Supervisors to Directors), Parents, Teachers or Lecturers... even Government Officials to the President, need to be committed to **SETTING EXAMPLES**... In front of the three sung shovels.

CONCLUSION

In the History of Training Within Industry, TWI in the author's opinion has played a major role in the success of WORLD WAR II and the development of TOYOTA. With these 2 main things, maybe TWI can be considered a **WELL-PROVEN METHOD.** A method that has been proven to be successful in contributing to success. But it cannot be said to be the main contribution. And if you look further, the 4-stage training program developed by Charles Allen, which is the basis for the development of the 4-stage TWI, has been developed since World War I when it increased the number of shipping workers up to 10 times.

Why can this method be successful in a multicultural country like America and also a monoculture like Japan? Perhaps the answer is that because this method is not influenced by culture or education, it is very simple and humane. Often we hear "quote": Small is beautiful. Maybe the following quote already says, for the author: SIMPLE is BEAUTIFUL. Explaining difficult things in difficult language is easy, but explaining difficult things in easy language (easy to understand), is difficult. SIMPLE is one of the Training Within Industry PHILOSOPHY, so it is accepted in any culture.

The TWI method can also be considered to increase the development of manufacturing and non-manufacturing to improve the SKILL of a SUPERVISOR or LEADER.
Once again, I emphasize that the SUPERVISOR or LEADER here is not his position, but a person who has subordinates, whatever the position.

Even a President can be considered a LEADER. From the perspective of Training Within Industry, if what a President instructs is not implemented properly or is not in accordance with the goals desired by the President himself, it means that the President has NOT TEACHING/INSTRUCTING TWI-STYLE. And in this case the real problem is with the PERSON WHO TEACHES or INSTRUCTS.

A Responsible and Wise PHILOSOPHY. Do not throw responsibility or blame on the Subordinate. Because subordinates' mistakes are the responsibility of their superiors. Teacher Peeing Stand, Student Peeing Running, Proverb Says.

To accelerate the development of the Manufacturing and Service Industry in Indonesia, TWI can be one of the options. A choice that has actually been tested. WELL-PROVEN. The problem is that it only takes the will and consistency to do it.

PLEASE Training Within Industry, CONSIDERED AS A SUPERVISORY METHOD.
General Douglas McArthur had chosen Training Within Industry as a method to revive the Japanese Economy.

Author, March 2011

Chilmar

APPENDIX

1. TWI-JI Card

4 STAGES OF HOW TO TEACH

Stage 1.. Prepared to learn
Made comfortable
Mention what work to be done
Check the level of knowledge of the job
Created the feeling of wanting to learn the job
Placed in the correct position

Stage 2 .. Explaining the Job
Mention, demonstrate and explain in writing one step after another, the main steps
Emphasize the important points clearly.

Clearly, without missing anything and full of patience Not forced beyond his ability to understand

Stage 3 .. Told to practice it
When practicing.... Immediately fix the wrong part
While practicing, he was told to explain the work
Be told to practice once again, while mentioning important points

Check until you are sure that you understand

Stage 4.. Following up on the condition after being taught
Told to carry out the work that has been taught
Assign people to ask questions when something is not understood
Checked repeatedly
Made to ask questions
Reduce guidance gradually

Employees until no understand, because guitar does not teach it.

HOW TO PREPARE IN TWI,

Before teaching;

Creating a Who's Training Plan Table ....
Which job ....
Until when....

Outlining the Job
Sorting the key steps
Finding important points (Safety should be an important point)

Preparing all the belongings
Correct equipment, tools, materials and
Other items needed

Organizing and setting up the workplace
Done well so that workers always maintain it

2. Practice by Saying Only

Practice by Saying Only

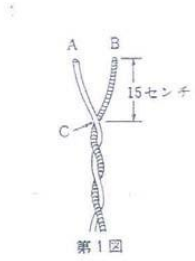
So that there is no interruption of questions, the trainer's way of speaking is not rushed and clear. 1. Grab a power cord

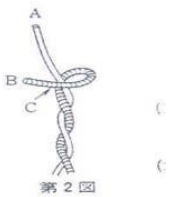
2. Hold with your thumb and index finger of your left hand at a position 15 cm from the top, position it so that the cable is straight
3. Unravel the cable twist at the top by branching it into two cable strips
4. Uphold the two cable strips with the thumb and index finger of the right hand
5. Hold the cable at the base of the branch
6. Hold the right wire with your right hand, twist it so that it makes a circle clockwise, cross it by placing the end of the wire slightly on the front.
7. Press the crossing point, make the circle diameter approximately 3 cm, position the end of the cable out about 4 cm from the left cable
8. Hold the left side of the cable with the right hand
9. Make a circle counterclockwise, when making this circle, first pull the wire to the front through the bottom of the exit section all the way to the back of the twisted wire.
10. Pass the end into the right circle, from back to front.
11. Hold both ends with your thumb and index finger of your right hand
12. Tighten the knot
13. When tightening, tidy up the shape of the knot while lowering the circumference with the thumb and index finger of the left hand.

3. Job Breakdown and Key Points

Cable Winding

Here's how to make a knot using a standard double-fluted power cable.

<table>
<tr><td rowspan="6"> 

第１図
Figure 1</td><td>Main Steps</td><td>Important Points</td></tr>
<tr><td>(1) Unravel the braid, straighten it out</td><td>15 cm</td></tr>
<tr><td>(2) Create Right Circle</td><td>In front of the twisted kebel</td></tr>
<tr><td>(3) Creating a left circle</td><td>Pull forward.
Passing bottom That came out.
Until other back of the cable.</td></tr>
<tr><td>(4) Skip the end to Circle</td><td></td></tr>
<tr><td>(5) Tighten</td><td>With both ends.
While lower the circle.
Firmly.</td></tr>
<tr><td> 

第２図
Figure 2</td><td>Main Steps
(1) Unravel the braid, straighten itHold position C with your left hand (figure 1)
(2) Make a right circle with the right cable (cable B) Press the crossing point between the circles with Braided</td><td>Important Points
This work, 15 cm
(the difference is slightly ineffectual to results)
Cross the front of the twisted cable
(image (2)</td></tr>
</table>

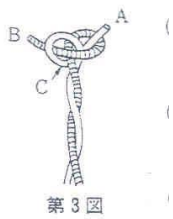
 第 3 図 Figure 3	(3) Make a circle on the left with the left wire (cable A) (4) Pass the end of the A cable into the right circle (figure 3)	Pull forward, past the bottom of the left end that comes out, then bring it to the back of the cable Twisted
 第 4 図 Figure 4	(5) Tighten Hold both ends (A and B) with your thumb and index finger of your right hand, holding the twisted wire at point C with your left hand Create a knot shape so that it can be adjusted at the base of the branch with the thumb and index finger of the left hand Conclude tightly	Second The End (Figure 4) While in a Lower circle Tightly

Figure 1-4 is an example of Cable Winding

4. Other TWI-JI Documents

1. Job Description Sheet
    a. Job Description Form
    b. Sample Job Description 1
    c. Job Description Example 2
2. Training Planning Table Sheet
3. TWI-JI Card

No.

JOB DESCRIPTION SHEET

.....

Jobs :

Share :

Tools and Materials :

Main Steps	Key Points
Main work sequences to carry out Occupation	Things explained for each step (1) Things that affect whether or not the work is successfully completed --- **successful/not** (2) Dangers --- Feared can injure --- workers **Secure** (3) Things that **make** work easier --- intuition, techniques, etc.

26 Sep '03

No.

JOB DESCRIPTION SHEET

…… Jobs : LCD Wire Wrapping

Share : Wire LCD, Insulock tie, Ferrite core

Tools and Materials : Scissors, Ruler

Main Steps	Key Points
Main work sequences to carry out Occupation	Things explained for each step (4) Things that affect whether or not the work is successfully completed --- **successful/not** (5) Dangers --- Feared can injure --- workers **Secure** (6) Things that **make** work easier --- intuition, techniques, etc.
1. Feed the Wire to the Ferrite core	75 mm -------→ standard
2. Paste Insulock	1. Serrated parts are attached to Ferrite core -------→ success
	2. The head is on the left -------→ makes it easier
3. Wire Wrap	3 times -------→ standard
4. Pull and tidy up the Wire	Standard --------□ flat wire
5. Tighten Insulock	Behind the Wire that stands out ---------→ success
6. Cut Insulock	

No.

JOB DESCRIPTION SHEET

Jobs : Cleaning the mask screen

Share :

Tools and Materials :

Main Steps	Key Points
Main work sequences to carry out Occupation	Things explained for each step (7) Things that affect whether or not the work is successfully completed --- **successful/not** (8) Dangers --- Feared can injure --- workers **Secure** (9) Things that **make** work easier --- intuition, techniques, etc.
1. Wear personal protective equipment	Must be worn
2. Place the metal mask screen on the pads	The bearing should not hit the mass screen hole
3. Lifting the solder cream with a solder spoon	Leads to
4. Spraying cleaning and wiping liquid	Does not press the mass screen
5. Cleaning the mask holes	Does not press the mass screen
6. Perform a check by pointing at the light	Prioritize those with a diameter of 0.5 mm
7. Return the mask screen	As per the sequence number

TRAINING PLAN SHEET

TWI-JI CARD

5. Examples of MEMORIZATION

This example can be studied in more detail in other books on how to improve your memory. I will only give an example if the TEACHER is creative to DESCRIBE something, USING LANGUAGE that makes it easier will help the person being taught/instructed to remember and understand the lesson/instruction given.

In training classes, I often ask someone to volunteer to come forward to memorize the following sequence of words:

1. Chair	6. Window	11. Radio	16. Doctor
2. Shoes	7. Pot	12. Pencil	17. Apple
3. Closet	8. Lamps	13. Crocodile	18. Fake
4. Clock	9. Paper	14. Young children	19. Kitchen
5. Drawer	10. Newspaper	15. School	20 Call

I give it 3-5 minutes to memorize a sequence.
After the volunteers memorized it, he was asked to turn around to restate to the other participants the memorized words in order. Usually volunteers will fail by mentioning it perfectly in order.

Then I asked the volunteers to now memorize by stringing these words together to make a story. The more exciting the story will be, the better it will be and I ask volunteers to imagine the story. One example of the story is as follows: There is a **CHAIR** with four legs. The four legs of the chair were given **SHOES** that were bright red. Well.. Because the chair has been given shoes, the chair is starting to be able to walk. The chair was then arrested, then put on top of **the CLOSET…..** When it was placed on the cabinet, suddenly.... Duuuaaar... There was an explosion and smoke billowing out, it turned out that the closet turned into **a high** JAM.
When researched, the clock was found to have **LACI.** Since we want to know its contents, the drawer is pulled out to open... Wow. Wow.

Wow. There is **a window**. From the window we can see out, it turns out that outside there is a **rather high POT** on which there is **a LAMP** to shine it. The lamp, after touching, turned out to be made of **PAPER.** When the sheet of paper was opened, apparently it was **the NEWSPAPER** used.

The story continues. In the newspaper there was an article about **the magic RADIO**. When the advertisement was read, from the radio, suddenly there was an advertisement about **PENSIL** which had a logo with **a picture of a CROCODILE.** From the pencil, the crocodile came out and chased **after the LITTLE CHILD** who was playing. The little boy was so scared that he screamed and ran to **the SCHOOL,** but when he arrived at the school he did not meet the teacher, but met a **DOCTOR.** The doctor was eating a delicious red apple. Because it was so delicious, suddenly a **hungry MALING** came to grab the apple and ran to **the kitchen**. When the thief arrives in the kitchen... the **bell** alarm bell sounds.

Usually participants smile listening to the story above. First, because it is not LOGICAL according to them. Then after the volunteers conveyed the story and were asked to repeat in order what I asked before. It turns out that volunteers can mention it in order starting from no. 1 to 20 or mention it in reverse from no. 20 – 1.

Well, what I want to convey here is that it is not the participants who cannot convey what is taught/instructed. But because we teach/convey in a way that is less understandable to the person being taught, the person being taught cannot do it as taught or instructed. In a DIFFERENT/CREATIVE WAY, it turns out that the same thing can be done well.

References related to Training Within Industry

TWI Manual, Articles on TWI, Lean etc., :
Training Within Industry : http://trainingwithinindustry.blogspot.com/

The TWI Institute : http://twi-institute.com/

TWI's original materials can be found at Society Manufacturing Engineers: http://chapters.sme.org/204/TWI_Materials/TWIPage.htm

TDO Solutions of Manufacturing & Technology
http://www.tdo.org/compete/training-within-industry-twi/

TWI homepage of South Carolina Manufacturing Extension Partership
http://www.scmep.org/twi.html

Training Within Industry Service (TWI Instruction Manuals and materials):
http://www.trainingwithinindustry.net/

TWI Learning Partnership :
http://www.twilearningpartnership.com/

Training Within Industry (Wikipedia) :
http://en.wikipedia.org/wiki/Training_Within_Industry

TWI Summit: http://www.twisummit.com/

Iowa University: CIRAS-Productivity, Training Within Industry:
http://www.ciras.iastate.edu/productivity/twi.asp

Presentation material from the Center for Industrial Research and Service, Iowa State University :

http://www.ciras.iastate.edu/productivity/info/TWI_Supervisor_Skills
_Training_Presentation.pdf

TWI Documentation on Art of Lean : http://artoflean.com/documents/docs.htm

Round Pond Consulting : http://www.roundpondconsulting.com/

Grasp The Situation: http://graspthesituation.com/

Vermont MEP: http://www.vmec.org/

Central NY TDO MEP: http://www.twi-institute.com/

Art of Lean : http://www.artoflean.com/

TWI on Wikipedia : http://www.wikipedia.org/wiki/Training%20Within %20Industry

企業の人材育成を支援します(日産訓) : www.alpha-net.ne.jp/users2/sankun/tokyo/index.html

TWI Wikipedia (in Japanese) http://ja.wikipedia.org/wiki/TWI%E7%A0%94%E4%BF%AE

Why Did Training Within Industry Die in the United States? http://www.qualitydigest.com/inside/twitter-ed/why-did-training-within-industry-die-united-states.html

CIRAS

•Jeff Mohr,jeffmohr@iastate.edu515.294.8534 (office), 515.450.7639 (mobile)

http://www.ciras.iastate.edu/productivity/twi.asp

Books about TWI

The TWI Workbook: Essential Skills for Supervisors by Patrick Graupp &
Robert J. Wrona, Productivity Press, 2006

Implementing TWI : Creating and Managing a Skills-Based Culture by Patrick Graupp & Robert J. Wrona, Productivity Press, 2010

Toyota Talent: Developing Your People the Toyota Way by Jeffrey Liker & David Meier, Mc-GrawHill, 2007

Toyota Kata : Managing People for Improvement, Adaptiveness and Superior Results by Mike Rother, McGraw-Hill, 2009

Why Did Training Within Industry Die in the United States?

http://www.qualitydigest.com/inside/twitter-ed/why-did-training-within-industry-die-united-states.html

- "Roots of Lean — Training Within Industry: The Origin of Kaizen" by Jim Huntzinger (Second Quarter 2002. *Target* Vol. 18, No. 2, pp. 9-22).

William J. Breen – Social Science and State Policy in World War II: Human Relations, Pedagogy, and Industrial Training.

Alan G. Robinson and Dean M. Schroeder – Training, Countinuous Improvement, and Human Relations: The U.S. TWI programs and the Japanese Management Style.

Training Within Industry: The Foundation of Lean by Don Dinero (2005.
New York, NY: Productivity Press).

Implementing TWI: Creating and Managing a Skills-Based Culture by Patrik Graupp and Robert J. Wrona (2010, New York, NY : Productivity Press).

- *The TWI Workbook*: *Essential Skills for Supervisors* by Patrick Graupp and Bob Wrona (2006. New York, NY: Productivity Press). Graupp and Wrona have the only known modern certification program in TWI at the Central New York Technology Development Organization, which is part of the NIST-MEP network. Contact Bob Wrona: rwrona@tdo.org or telephone:
315/425-5144.

Training Within Industry : TWI Bulletin Series, Training Within Industry
(Author), Tracy S. Epley (Editor), Collin McLoughlin (Editor), Enna Inc.,
2008

Training Within Industry : Job Instruction, Bureau of Training: War Manpower Commission (Author), Collin McLoughlin (Author, Editor), Shawna Gilleland (Editor), Ken Shiwram (Illustrator), Enna Inc., 2009

Training Within Industry : Job Methods, Bureau of Training: War Manpower Commission (Author), Collin McLoughlin (Author, Editor), Shawna Gilleland (Editor), Ken Shiwram (Illustrator), Enna Inc., 2009

Training Within Industry : Job Relations, Bureau of Training: War Manpower Commission (Author), Collin McLoughlin (Author, Editor), Shawna Gilleland (Editor), Ken Shiwram (Illustrator), Enna Inc., 2009

Training Within Industry : Problem Solving, Bureau of Training: War Manpower Commission (Author), Collin McLoughlin (Author, Editor),

Shawna Gilleland (Editor), Ken Shiwram (Illustrator), Enna Inc., 2009

Training Within Industry : Program Development, Bureau of Training: War Manpower Commission (Author), Collin McLoughlin (Author, Editor), Shawna Gilleland (Editor), Ken Shiwram (Illustrator), Enna Inc.,
2009

Training Within Industry : Union Job Relations, Bureau of Training: War
Manpower Commission (Author), Collin McLoughlin (Author, Editor), Shawna Gilleland (Editor), Ken Shiwram (Illustrator), Enna Inc., 2009
Job Instruction Training : Participants's Session Guide & Implementation Manual, Mark Warren (Author), Bryan Lund (Author), Tesla2, Inc., 2010

TWI Case Studies: Standard Work, Continuous Improvement, and Teamwork, Donal A. Dinero (Author), Productivity Press, 2011

TWI on YouTube, Demonstration of the JI 4-Step Method of Instruction: http ://www.youtube.com/watch?v=QVKbNFZDnZo

About The Author

CHILMAR, M.Eng, CPHR

chlmr9@gmail.com

PERSONAL INFORMATION

Date of Birth : December 11st, 1967
Place of Birth : Jakarta
Sex : Male
Marital Status : Married with Vitria Pragesjvara, 2 children (Avicenna
Wise and Algazel Aqilla)

EMPLOYMENT HISTORY

1994 – 1997 Researcher in BPP Technology,
1997 - 1998 Freelance Japanese Interpreter
1998 - 2001 Interpreter for Yamaha Music Manufacturing Asia (PT.
YMMA)
2001 – 2002 Control Process Project Manager, PT YMMA 2002 – 2010 Production Manager, PT YMMA.

2010 – present Personnel Affairs Manager, PT YMMA

EDUCATION

High School Regina Pacis High School, Jakarta, 1986

University Gifu University, Electronics, 1992
Graduate School Gifu University, Telecommunication, 1994 **PROFESSIONAL QUALIFICATIONS**

Certifications and Accreditations

1. Air Traffic Control Systems Training, 1996, Hughes Aircraft, Canada
2. Just In Time (JIT) Kaikaku Doujou, 2003, Hirano Hiroyuki, JIT Keiei Kenkyuujou, Tokyo, Japan
3. Toyota Production System Part 1, 2002, Nagoya, Japan
4. Training for Trainers, 2004, PPM Management Institute, Indonesia
5. ISO9001:2000 version, 2005, Nihon Kikaku Kyoukai, Japan
6. Fault Tree Analysis (FTA) & Failure Mode and Effect Analysis (FMEA) Training, 2005, Nihon Kagaku Gijutsu Renmei, Japan
7. Quality Control Seminar, 2005, Nihon Kagaku Gijutsu Renmei, Japan
8. Industrial Engineering Basic, 2005, Chubu I.I. Kyoukai, Nagoya, Japan
9. Toyota Production System Part 2, July 2007, Nagoya, Japan
10. Basic MOST Applicator (Maynard Certification), December 2006, Nagoya, Japan
11. Training Within Industry (Job Instruction) as a Trainer, January 2007, Nihon Sangyou Kunren Kyoukai (JITA), Tokyo, Japan
12. Training Within Industry (Job Method) as a Trainer, January 2007, Nihon Sangyou Kunren Kyoukai (JITA), Tokyo, Japan
13. Training Within Industry (Job Safety) as a Trainer, February 2007, Nihon Sangyou Kunren Kyoukai (JITA), Tokyo, Japan
14. Training Within Industry (Job Relation) as a Trainer, November 2007, Nihon Sangyou Kyoukai, Tokyo (JITA), Japan
15. Certified NLP from IndoNLP 2008
16. CPHR (Certified Professional Human Review) 2011

QR Code for Info about TWI

1. QR Code for Blogs about Training Within Industry

http://aiueo-twi.blogspot.com

2. QR Code for Free E-Magazine on Training Within Industry (App on Android)

http://www.4shared.com/file/rFKCD2mC/Training_Within_Industry__free.html